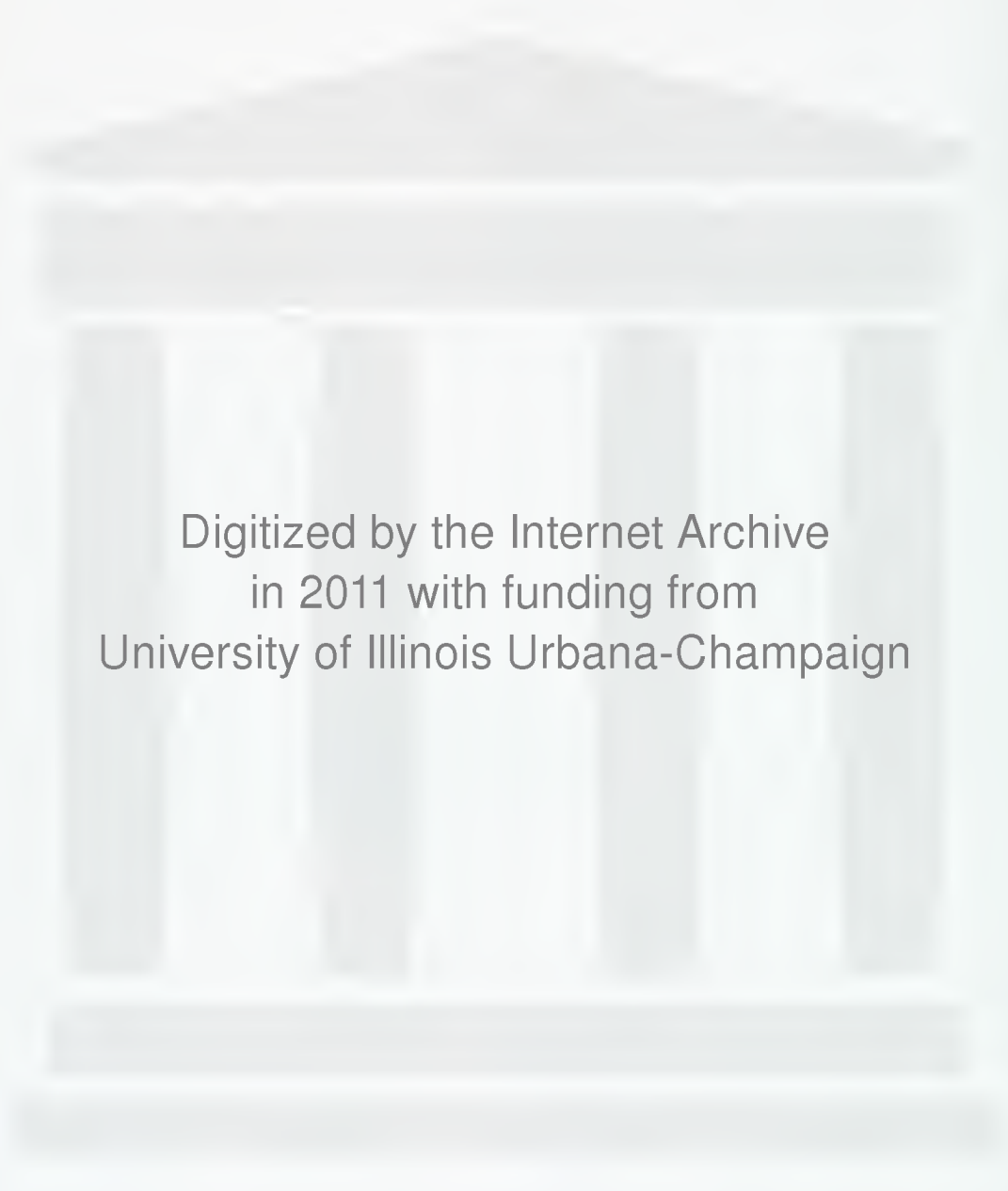


UNIVERSITY OF
ILLINOIS LIBRARY
AT URBANA-CHAMPAIGN
BOOKSTACKS



Digitized by the Internet Archive
in 2011 with funding from
University of Illinois Urbana-Champaign

<http://www.archive.org/details/genesisofillusor386lond>

Faculty Working Papers

**THE GENESIS OF ILLUSORY CORRELATIONS AND
THEIR EFFECTS ON PERSONNEL DECISIONS**

Manuel London

#386

**College of Commerce and Business Administration
University of Illinois at Urbana-Champaign**

FACULTY WORKING PAPERS

College of Commerce and Business Administration

University of Illinois at Urbana-Champaign

March 17, 1977

THE GENESIS OF ILLUSORY CORRELATIONS AND
THEIR EFFECTS ON PERSONNEL DECISIONS

Manuel London

#386

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES
DEPARTMENT OF CHEMISTRY

CHICAGO, ILL.

RECEIVED
DEPARTMENT OF CHEMISTRY
UNIVERSITY OF CHICAGO

CHICAGO, ILL.

END

Abstract

Many interviewer and rater biases can be interpreted as illusory correlations that result from the co-occurrence of distinctive events. For example, bias against black managers may result from the association of the two infrequent, yet co-occurring, events of a black manager and his low job performance. To test the illusory correlation phenomenon, subjects in a personnel decision-making simulation were given information about subgroups in a work unit and the performance of the total unit over time. The subgroups were either socially disadvantaged (black, female, or older) or socially advantaged (white, male, or younger) and were either in the minority or majority of the work unit. The distribution reflecting the unit's performance was either positively or negatively skewed. The data indicated that an illusory correlation formed between the distinctive events of being disadvantaged, being in the minority, and the low frequency end of the performance distribution. Specifically, subjects asked to choose between two prospective employees tended to select the minority-disadvantaged candidate when the performance distribution was positively skewed while they tended to select the majority-advantaged candidate when the distribution was negatively skewed. Implications of the results for identifying and dispelling organizational myths are discussed.

THE GENESIS OF ILLUSORY CORRELATIONS AND THEIR EFFECTS ON PERSONNEL DECISIONS

Industrial psychologists have long been painfully aware of the human errors that plague many personnel decisions. For example, Thorndike (1920) coined the term "halo effect" to refer to the phenomenon that a person's judgment of one trait influences judgments about other traits. Studies of interviewers have found that initial impressions derived from an application blank or the first direct contact with an applicant can clinch a decision or at least color later perceptions (Webster, 1964). Another common error is that interviewers often give more weight to unfavorable information and less weight to favorable information when formulating an overall impression (London and Poplawski, 1976; Springbett, 1958). While numerous studies have demonstrated that these and other errors exist, studies discovering how they come about are rare. The current study investigates the proposition that many of these errors can be explained by illusory correlations that emerge via cognitive information processing.

Illusory correlations are "...correlations between two classes of events which, in reality, (a) are not correlated, (b) are correlated to a lesser extent than reported, or (c) are correlated in the opposite direction from that which is reported" (Chapman, 1967, p. 15). This is the basis for many rater biases. For example, the halo error may be interpreted as an illusory correlation between positively valued traits. The importance given to an initial impression is the result of an assumed association between particular behaviors or demographic characteristics (such as a firm handshake, membership in a certain fraternity, or being black) and a set of desirable or undesirable attributes. Interviewers may give negative information more weight than it deserves since it is presumed to be associated with the

costs of hiring an individual who would be a poor performer. Given the potential importance of illusory correlations, it would be useful to study how they emerge.

In the first study of illusory correlations, Chapman (1967) presented students with pairs of words that varied in their associations. For example, lion-tiger represents a close association whereas bacon-notebook represents a remote association. Although all words were paired with each other an equal number of times in a stimulus set, the subjects reported that words with close associations occurred together more often in the set than words with remote associations.

This research was subsequently applied to psychodiagnostic observations. Chapman and Chapman (1967, 1969), Golding and Rorer (1972), and Starr and Katkin (1969) demonstrated that trained clinicians as well as students tended to associate certain symptoms and test responses with mental illnesses when no veridical relationships were evident in the data they observed or in data based on actual clinical cases. These studies indicated that an erroneous association between two events was maintained even after information to the contrary was available.

Hamilton and Gifford (1976) extended this research by demonstrating that illusory correlations develop between co-occurring distinctive events when no prior associations had been formed. They presented student subjects with a series of descriptive statements that varied in favorability. Each statement was paired with a letter (A or B) that represented the subgroup to which the person described by the statement belonged. In one study, there were fewer favorable statements in the stimulus set than unfavorable statements while in a second study there were more unfavorable than favorable statements. In both studies, the frequency of occurrence of one letter in the set of

statements was less than the occurrence of the other letter. In addition, each letter was paired with favorable and unfavorable statements an equal number of times. Illusory correlations resulted in both studies. That is, subjects incorrectly concluded that the letter that occurred less frequently was paired a large proportion of times with the type of information (favorable or unfavorable) that occurred less frequently.

London and Poplawski (1976) attempted to apply this paradigm to a simulation of personnel decisions made on the basis of indirect information. While many personnel decisions are made after direct (i.e., person to person) contact with individuals, other decisions are often made on the basis of indirect contact (Warr and Knapper, 1968, pp. 26-31). For example, a personnel director may screen a set of application blanks before deciding who to interview. Similarly, a manager may decide to transfer individuals in his organization after reviewing only their background and reports of their performance in the organization. London and Poplawski asked students to form impressions of two companies (labeled Company A and Company B). Several sets of stimuli were constructed such that favorable and unfavorable descriptions describing different individual employees were paired with each company. Following Hamilton and Clifford's (1976) design, there were either more favorable than unfavorable statements in the stimulus set or vice versa. Also, one company letter occurred more frequently than the other, and each company was paired with favorable and unfavorable information an equal number of times. Using a procedure similar to one followed by Chapman and Chapman (1967), each statement-company pair was presented on a single sheet of paper and the subjects read through each page until they completed all statements. In this case, the illusory correlation was not supported by the results. Subjects did not form impressions on the basis of an association between the company

occurring less frequently and the type of information (favorable or unfavorable) occurring less frequently.

One explanation for London and Poplawski's (1976) results may be that the distinctiveness of each of the stimuli (the frequency of a company and the type of information) was not sufficiently strong to induce an illusory correlation. Perhaps the more distinctive two stimuli are, the more they tend to be associated with one another. For example, if a manager has learned that there are few females in a work group, he may be prone to attribute a low frequency event (e.g., extremely good or extremely poor group performance) to a female. This involves the matching of two distinctive stimuli (being female and the low frequency of females in the organization) with a third distinctive stimulus (an unusual level of group performance). In general, the tendency to inaccurately attribute unusual levels of group performance to particular subgroups should be particularly strong when a socially disadvantaged subgroup (e.g., blacks, females, or older workers) is in the minority in the work group since the joint occurrence of the characteristics of being both socially disadvantaged and a minority in the group is particularly distinctive.

The current study tests this phenomenon in a personnel decision simulation. The following three independent variables are examined: (1) Minority versus majority status. This distinction is defined in terms of the number of individuals in a work group who possess a common characteristic that distinguishes them from others in the work group. (2) An employee's membership in a socially advantaged or disadvantaged subgroup. In this study, this distinction is based on either race, sex, or age such that the minority in the work group is either advantaged (white, male, or young) or disadvantaged (black, female, or older). (3) A positively skewed versus a negatively skewed distribution reflecting previous evaluations of the total group's overall performance. This variable

allows an investigation of the effects of overall group performance on perceptions of subgroups and their members.

Four alternative hypotheses are tested. First, perceptions may be determined solely by minority versus majority status such that the minority is rated less favorably than the majority. This would occur if individuals have a propensity to view events (or people) which occur less frequently as less favorable than events which occur more frequently (cf. Saegert, Swap and Zajonc, 1975). This would provide a simplified explanation for why stereotypes of minorities tend to be negative. Second, disadvantaged subgroups (blacks, females, older workers) may be rated less favorably than advantaged subgroups (whites, males, younger workers) in the work group. This would result from pre-established stereotypes held by the raters who, in the current study, are all male, white and young. Third, in a group that has a predominantly positive performance record (negatively skewed distribution), all members may be rated more favorably than in a group with a predominantly unfavorable performance record (positively skewed distribution). In this case, the average level of the total group's performance would determine the judgments of both subgroups' performance. Fourth, an illusory correlation may emerge between the co-occurrence of distinctive events. That is, the minority group may be associated with the infrequent occurrence of good group performance in a positively skewed distribution. As a result, the minority would be viewed more favorably than the majority. Similarly, when the distribution of the group's performance is negatively skewed, the minority may be associated with the low frequency of unfavorable information and hence would be judged less favorably than the majority. The illusory correlation should be magnified when the minority group consists of disadvantaged workers since the distinctiveness of the minority would be enhanced under this circumstance.

Another aim of this study is to compare ratings of subgroups with ratings of individuals identified with those subgroups. Feldman and Hilterman (1976) argued that group stereotypes are probably not related to beliefs about particular members of a group in the same way that general attitude measures do not predict behavior toward any particular object (Ajzen and Fishbein, 1973). London and Poplawski (1976) found that individuals seemed to be evaluated on their own merit although a negative group stereotype resulted in a contrast effect working in favor of an individual. In a field study, Abrahams, Atwater and Alf (1977) reported that neither race of a Navy interviewer nor race of the recruit determined the outcome of a classification interview, supporting the argument that group stereotypes do not influence decisions about individuals. The current study compares ratings of subgroups and individual candidates for employment who are identified with those subgroups. These ratings follow the presentation of information designed to induce subgroup stereotypes. Also, the effects of these stereotypes are examined when a choice must be made between candidates identified with different subgroups.

METHOD

Subjects

One hundred ninety-two male, white students enrolled in an introductory course in organizational behavior at a large state university participated in the study for course credit.

Stimulus Materials

The stimulus materials were presented to the subjects in writing. Each package of materials consisted of the following two sections:

Instruction Set. Subjects were told that the purpose of the study was to examine decisions made on the basis of a limited amount of information.

They were asked to read the information carefully and answer all questions giving their immediate and first impression. All subjects were directed to assume the same role via the following instructions:

Suppose you are a plant manager and you find that an employee of a special work unit has just quit. Since your company has imposed a hiring freeze, you must transfer an employee from another department. You want to transfer someone who will be compatible with the current employees of the work unit and who will be able to do a good job. This is particularly important since the unit is working on a special project.

Information About the Work Unit. All subjects were then told that there are now 25 employees in the work unit, all of whom had been together since the unit began operation several years earlier. Before their assignment to the unit, these employees had worked in one of two other sections of the company, either Department A or Department B. The advantaged-disadvantaged subgroup manipulation was then induced by informing the subjects that Department A consisted, and still consists, of either all blacks, females, or older workers (55-65 years old) while Department B consisted, and still consists, of either all whites, males, or younger workers (25-35 years old). Minority-majority status of subgroups in the work unit was manipulated by the subsequent information that of the 25 employees now in the work unit, three had worked together in Department A and 22 had worked together in Department B. In this case, employees from Department A would be in the minority while employees from Department B would be in the majority. Department labels were used rather than assigning a disadvantaged or advantaged subgroup to the minority or majority (e.g., simply specifying that there are three blacks and 22 whites in the unit). In this way, the subjects could be asked later to rate departments represented in the unit or candidates from different departments rather than "blacks," "a black candidate," or other direct stimulus objects that might

detract from the context of the study and prompt stereotype judgments of the particular advantaged or disadvantaged group. The assignment of minority status and assignment of disadvantaged subgroups to departments was counter-balanced to control for the effects of the letters A and B. Also, minority and majority status was crossed with advantaged and disadvantaged subgroups. The result was that a disadvantaged subgroup was a minority in the work unit for half of the conditions and a majority in the work unit for the other half of the conditions. A final statement summarized the condition for the subject. For example, "Therefore, there are now 3 males and 22 females in the special work unit."

Information about the work unit's performance was introduced by explaining to the subjects that an evaluation had recently been conducted by an expert who observed the unit over an extended time period and rated its performance on a number of different occasions. The performance ratings had been classified into the categories of very good, good, average, poor, or very poor. The subject was presented with the number of times out of 27 the unit as a whole had been placed in each category. The distribution was either positively skewed or negatively skewed. The positively skewed distribution had the following frequencies: very good (2), good (4), average (6), poor (9), very poor (6). The frequencies for the negatively skewed distribution were reversed. The distributions were presented vertically with the very poor category at the top and very good category at the bottom with tally marks to indicate the frequencies.

Both the minority-majority ratio and the distributions of the work unit's performance were chosen to be as distinctive as possible while appearing reasonable to the subjects.

Dependent Measures

Subjects were first asked to describe the individuals now in the special work unit who originally worked in Department A and separately to describe the individuals now in the special work unit who originally worked in Department B. The order in which the employee subgroups from each department were rated was counterbalanced. Ratings were made on nine 8-point semantic differential scales. Eight scales consisted of adjective pairs such as unsuccessful-successful and uncooperative-cooperative. A final scale was anchored by the phrases "poor performers on the job" and "good performers on the job."

Following the subgroup ratings, the subjects were reminded that they must decide to transfer an employee from Department A or Department B to the special unit. The instructions continued, "To help you make your decision, you have asked the supervisor of each department to select an individual who could be transferred. Each supervisor has supplied you with a description of an employee." An employee from one department (A or B) was then described by a set of four statements. The statements were chosen from the pool of 730 items compiled by Hakel and Dunnette (1970). Only statements which described the employee in neutral terms were used. Examples of the statements are, "has average intelligence," and "seems more satisfied than dissatisfied." Two sets of four statements were constructed and each set was paired with an employee of Department A and Department B an equal number of times throughout the study. Each employee was rated on the same set of semantic differential scales used to rate the subgroups from Department A and Department B currently in the unit. The last scale dealt with expected performance and was anchored by the phrases "would be a poor performer in the special work unit" and "would be a good performer in the special work unit."

Finally, the subject was asked to select one employee who should be transferred to the special work unit. Therefore, either an employee from Department A or Department B was chosen.

Procedure

Data collection sessions were held in a conference room with groups of 15 to 25 students per session monitored by a male, college age, experimenter. When all students had arrived for the experiment, the research materials were distributed. Each set of materials consisted of all the instructions, the stimulus information, and the rating scales. The experimenter instructed the subjects to read all materials carefully and at their own pace, reading each page in succession without skipping pages or looking back and forth. Subjects were asked to wait until all individuals in the room had completed their ratings before they were free to leave. The experimenter was present in the room throughout the session to answer questions and insure that all participants read the materials and finished the ratings.

Analyses

The rating scales were analyzed as dependent variables in a $2 \times 2 \times 3 \times 2 \times 2 \times 2$ analysis of variance with repeated measures on the last three factors. The independent variables were the minority-majority status of former employees of Department A and Department B in the work unit, direction of the unit's performance distribution (positively or negatively skewed), basis for subgroup distinction (sex, race, or age), advantaged versus disadvantaged subgroup nested within sex, race, or age (white-black, male-female, or younger-older), individual candidate versus subgroup rating, and whether the rating involved Department A or Department B. Scheffé analyses were used to test post hoc comparisons. χ^2 tests were used to analyze the frequencies with which the different candidates were chosen when the work unit's performance distribution was positively skewed and when it was negatively skewed.

RESULTS

Since the adjective-pair semantic differential scales were highly intercorrelated (median $r=.54$, $p<.01$) and the adjective-pair scales were highly related to the performance ratings (median $r=.57$, $p<.01$), only the results from the analysis of variance on the performance ratings are presented here. Since the analysis of variance was complex, involving the main effects and interactions for six independent variables, only the significant effects will be described below.¹ Additional analyses demonstrated that no significant relationships occurred between the performance ratings and order in which departments were rated and order of statement sets describing candidates.

Ratings involving the minority were significantly higher than ratings involving the majority. Specifically, a significant two-way interaction occurred between minority versus majority status of the department and the department rated, $F(1, 168)=6.47$, $p<.01$, $\omega^2=.01$. An examination of the means indicated that the results were not affected by whether Department A or Department B was the minority. The data for this interaction were averaged across departments to compare ratings of the majority and the minority. Across all other conditions, disregarding whether the rating was of an individual candidate or subgroup within the department, the minority was rated more positively on performance ($\bar{X}=5.05$) than the majority ($\bar{X}=4.79$).

An additional interaction indicated that the perception of the minority and majority depended on the direction of the performance distribution of the entire work unit. This involved a three-way interaction between minority versus majority status of the department within the unit, the department rated, and the direction of the performance distribution, $F(1, 168)=3.87$, $p<.05$, $\omega^2=.01$. Again, since the results were not affected by which department was assigned minority status, the mean values were averaged across

departments to compare ratings of the minority and majority for the positively and negatively skewed performance distribution conditions. These values are reported in Table 1.

Insert Table 1 About Here

When the distribution was positively skewed, the minority was evaluated significantly more highly ($\bar{X}=4.61$) than the majority ($\bar{X}=4.16$). This finding supports the hypothesis of an illusory correlation. However, this may have been the result of either an association between minority status and the tail of the distribution, majority status and the mean of the distribution, or both. If the subjects were totally accurate, they would have recognized that sufficient information was not available for distinguishing between the minority and majority. In this case, the ratings should have been interpolated from the mean of the performance distribution for the total group. In the case of the positively skewed distribution, the value on the 8-point rating scale corresponding to the mean of the performance distribution was 4.00. The average rating of the majority (4.16) was quite close to this value while the mean for the minority (4.61) was apparently inflated. This indicates that the subjects associated the distinctiveness of minority status with the low frequency end of the positively skewed performance distribution.

Contrary to the hypothesis based on the illusory correlation, no significant difference occurred between ratings of minority and majority subgroups when the performance distribution was negatively skewed.

A significant main effect occurred for subjects' evaluations between the positively and negatively skewed performance distribution conditions, $F(1, 168)=77.65$, $p<.001$, $\omega^2=.11$. As predicted, ratings were generally more favorable when the total work unit had been evaluated favorably most of the time (negatively skewed distribution, $\bar{X}=5.45$) than when the unit was evaluated

unfavorably most of the time (positively skewed distribution, $\bar{X}=4.39$).

A significant main effect occurred between ratings of individual candidates versus ratings of subgroups within the unit, $F(1, 168)=3.76$, $p<.05$, $\omega^2=.01$. In general, the subjects' evaluations of the subgroups' performance were higher ($\bar{X}=5.04$) than the ratings of expected performance of the candidates ($\bar{X}=4.81$).

However, the ratings of candidates versus subgroups depended upon the direction of the unit's performance distribution. A significant two-way interaction emerged between candidate versus subgroup and positively skewed versus negatively skewed performance distributions, $F(1, 168)=62.25$, $p<.001$, $\omega^2=.08$. The mean values representing this interaction are presented in Table 2. The data indicate that subgroup ratings depended on the performance of the entire work unit such that subgroups, regardless of minority or majority status or membership in a socially advantaged or disadvantaged subgroup, were rated more favorably when the performance distribution was negatively skewed ($\bar{X}=6.03$) than when the distribution was positively skewed ($\bar{X}=4.04$). On the other hand, subjects apparently did not infer a candidate's expected performance in the work unit on the basis of the work unit's current performance. There was no significant difference in the ratings of candidates between the positively skewed ($\bar{X}=4.73$) and negatively skewed ($\bar{X}=4.88$) performance distributions of the work unit.

Insert Table 2 About Here

Although ratings of candidates were not affected by subgroup stereotypes, when the subjects were asked to select one individual to be transferred into the work unit, their choices were clearly biased by whether the candidate would be a majority or minority in the unit and whether the candidate was

socially advantaged or disadvantaged. The frequencies with which the different candidates were selected are presented in Table 3.

Insert Table 3 About Here

First, regardless of membership in a socially advantaged or disadvantaged subgroup, individuals who would have minority status were selected significantly more often when the distribution of the unit's performance was positively skewed whereas individuals who would have majority status were selected more often when the distribution was negatively skewed, $\chi^2(1)=5.37$, $p<.05$. Second, ignoring minority-majority status, members of disadvantaged subgroups (whether black, female, or older) tended to be selected more frequently when the distribution was positively skewed while members of advantaged subgroups (whether white, male, or younger) tended to be selected more frequently when the distribution was negative, although these differences were not significant, $\chi^2(1)=2.04$. These data support the hypothesis of an illusory correlation forming between co-occurring distinctive events (the tail of the performance distribution for the work unit, minority status in the unit, and being black, female, or older). Notably, these associations were used to judge candidates who were not yet members of the work unit. Thus, information about subgroups may affect selection decisions, at least when other distinctive criteria do not exist for discriminating between candidates for employment.

When the data are examined further, an interaction emerges between minority versus majority status and advantaged versus disadvantaged subgroup members. The illusory correlation is particularly strong when the minority in the unit is also disadvantaged, $\chi^2(1)=9.41$, $p<.05$. Being disadvantaged and in the minority does not necessarily evoke negative consequences. The information about the work unit's performance moderated the expectation of future success of an employee in the unit. When the performance distribution was positively skewed,

subjects selected the candidate who would be both a minority in the work unit and a member of a disadvantaged subgroup more often than the candidate who would be in the majority and was socially advantaged.

The illusory correlation dissipated when an advantaged candidate would be in the minority in the unit or when a disadvantaged individual would be in the majority, $\chi^2(1)=.04$. While such circumstances are unusual in society, they apparently did not allow the subjects to distinguish between subgroups in the work unit and form associations between these subgroups and the distribution of the unit's performance.

Table 4 presents the frequencies for each advantaged-disadvantaged condition separately. The only condition that strongly supported the illusory correlation was the one in which older workers were in the minority in the work unit and younger workers were in the majority, $\chi^2(1)=8.13$, $p<.01$. The subjects were apparently more cautious in forming associations based on sex and racial differences than on age differences.

Insert Table 4 About Here

DISCUSSION

The data supported the hypothesis of an illusory correlation forming between co-occurring distinctive events. The minority subgroup in the work unit tended to be associated with a positive level of performance when the unit as a whole was usually low in performance. However, contrary to the hypothesis of an illusory correlation, when the unit's performance was predominantly favorable, the minority was not associated with the infrequent occurrence of poor performance. This may indicate that raters are less willing to attribute negative than positive qualities to a group or individual.

Nevertheless, the illusory correlation was evident when subjects chose between two candidates for employment in the work unit. When the unit's performance was predominantly favorable, subjects were less willing to choose the individual who was socially disadvantaged (black, female, or older) and who would be in the minority in the work unit than the individual who was socially advantaged (white, male, or younger) and who would be in the majority in the unit. On the other hand, the minority-disadvantaged candidate was more likely to be chosen than the majority-advantaged candidate when the work unit's performance was predominantly unfavorable. Although the subjects were a homogeneous sample (all white, male, and young), pre-established stereotypes of the advantaged and disadvantaged groups did not influence the results. The likelihood of the minority-disadvantaged candidate's selection was not always low, but depended on the performance distribution of the work unit. Therefore, being disadvantaged and in the minority does not necessarily evoke negative consequences.

Either being in the minority or being a member of a disadvantaged subgroup was apparently enough to be associated with the tail of the unit's performance distribution. However, when minority status and disadvantaged subgroup membership occurred together, the association with the infrequent level of the unit's performance (i.e., the illusory correlation) was strongest. Apparently, the more distinctive a set of information is, the more likely it is to be associated with other distinctive information when a person forms an impression.

Interestingly, the illusory correlation had the strongest impact when the minority was older and when the majority was younger compared to all other conditions. Thus, some variables, in this case age, are more likely to be susceptible to being associated with co-occurring events than other variables, such as sex or race. The raters in this study may have been wary of

distinguishing between candidates for employment on the basis of sex or race. Alternately, the distinctiveness of being black or female may not have been as salient as the distinctiveness of being an older employee.

An illusory correlation did not affect the decision when one candidate was a member of an advantaged subgroup which was in the minority and the other candidate was a member of a disadvantaged subgroup which was in the majority (e.g., when there were 22 blacks and 3 whites in the work unit). These uncommon situations may have been viewed as intriguing ambiguities (Jones and Davis, 1965), but they apparently did not allow the rater to draw a distinction between subgroups in the work unit and the distribution of the unit's performance. Perhaps, creating such "intriguing ambiguities" may be the most effective method for reducing the effect of stereotypes in organizations.

The results demonstrated that ratings of individual candidates are not likely to be affected by group stereotypes. Raters did not infer a candidate's expected performance in the work unit on the basis of how well former employees in his department were now doing in the work unit. This supports previous findings that group stereotypes do not necessarily influence judgments of individuals (Feldman and Hilterman, 1975; London and Poplawski, 1976). Nevertheless, when subjects were asked to make a choice between two neutrally described candidates, the illusory correlation between co-occurring distinctive events apparently served as a readily available rationale.

The results of this study may be quite different if another sample is used or different distinctions are drawn between subgroups within the work unit. For example, a sample of older subjects may view younger workers as distinctive, resulting in an association of a minority of younger workers in the unit with the low frequency end of the performance distribution.

Moreover, the perceptions of blacks and females may be very different than those of the present sample. Also, distinguishing unit subgroups on the basis of such variables as marital status, tenure, and education rather than, or in addition to, race, sex and age could affect the emergence of an illusory correlation. These are matters for future study.

Conclusions

An erroneous association between co-occurring distinctive events may influence a person's judgment when a decision must be made between alternatives which do not clearly differ. The illusory correlation may therefore provide the dual function of justifying the decision and reducing the decision maker's uncertainty. Illusory correlations may be less likely to have an effect when alternatives clearly differ on one or more relevant dimensions, although this is a matter for future research.

Many organizational myths in addition to common rater errors may be explained by illusory correlations. Examples of common organizational myths include such beliefs as "Successful salesmen must be aggressive," "A piece-rate will inevitably be reduced when workers demonstrate that they can work faster," "The reason for a difference in pay between two managers must be that the lower paid is a poorer performer," and "A female cannot succeed as a manager in our organization." While there may be a "kernel of truth" (Brigham, 1971) to each of these beliefs in that they are supported on occasion, there may be as many, if not more, exceptions to the rule than cases where the rule applies.

Unfortunately, once a stereotype is established, few examples of the stereotype are necessary for its perpetuation. Individuals are likely to "gate out" information which does not conform to the stereotype (Bruner, 1957). Furthermore, when a case occurs that is consistent with the stereotype, it

serves to positively reinforce the stereotype (Campbell, 1968). This reinforcement is on a variable ratio schedule since the stereotype is seldom supported. This should substantially increase its strength, according to behavioral modification principles (Skinner, 1969). Moreover, once a stereotype emerges, newcomers to the organization are socialized to accept the stereotype. This may result from witnessing distinctive examples that conform to the stereotype, peer pressure, simple communication, or other social learning processes (Hamilton and Gifford, 1976).

Overcoming deeply ingrained stereotypes may not be easy if individuals resist new information that could create uncertain situations. One strategy may be to diminish the distinctiveness of events by altering their components. For example, situations may be created in which the majority in a work unit is black and the minority is white or in which there is at least an equal number of whites and blacks. Another strategy is to magnify the distinctiveness of counterexamples to the stereotype by associating them with positive reinforcement. For example, a supervisor could be rewarded for recruiting a successful female manager. Similarly, a sample appraisal form used by a supervisor who was not subject to halo error could be distributed to other supervisors as a model. A strategy to curtail stereotype development would be to identify events that employees view as distinctive and monitor their occurrence controlling other distinctive events that may occur simultaneously.

Illusory correlations may be helpful in explaining applicants' attraction to different organizations. For example, females might be attracted to being in the minority in a work setting if they attribute the good performance of the organization to females. Intriguingly, this attribution may be particularly likely when highly favorable performance occurs infrequently in the organization and consequently is associated with the low number of female employees.

According to the findings of the present study, males and females may be equally attracted to an organization in which males are in the minority since this situation is not likely to evoke stereotypic associations. In general, illusory correlations may add predictive power to expectancy theoretic explanations of organizational choice (cf. Oldham, 1976) by explaining how individuals judge the degree to which positive and negative outcomes are expected to result from joining different organizations.

The process of how illusory correlations emerge must be understood more thoroughly if erroneous associations are to be controlled. One topic for future research is the permanency of illusory correlations in the minds of individuals. A related issue is the threshold of co-occurrence necessary before an erroneous association becomes ingrained. Also, the interaction between illusory correlations and other processes of stereotype development such as social learning should be examined.

Finally, subjects' rationale for their judgments should be studied when ratings or decisions provide evidence for an illusory correlation. Consider the finding that the disadvantaged minority was selected more often than the advantaged-majority when the work unit's performance was predominantly unfavorable. A subject may believe that another majority group member would probably not help the unit's performance while a minority member would not hurt. Alternately, subjects may hold minority members responsible for the favorable, albeit infrequently occurring, performance. The ratings of subgroups in this study support the latter interpretation. Nevertheless, self-descriptions of subjects' own decision-making processes would provide insight into the meaning of the illusory correlation phenomenon.

FOOTNOTES

Requests for reprints should be sent to Manuel London, Department of Business Administration, University of Illinois, 61 Commerce West, Urbana, Illinois, 61801.

¹The complete results of this analysis are available from the author.

REFERENCES

- Abrahams, N. M., Atwater, D. C., and Alf, E. F. Unobtrusive measurement of racial bias in job placement decisions. Journal of Applied Psychology, 1977, 62, 116-119.
- Ajzen, I., and Fishbein, M. Attitudinal and normative variables as predictors of specific behaviors. Journal of Personality and Social Psychology, 1973, 27, 41-57.
- Brigham, J. C. Ethnic stereotypes. Psychological Bulletin, 1971, 76, 15-38.
- Bruner, J. S. On perceptual readiness. Psychological Review, 1957, 64, 123-152.
- Campbell, D. T. Stereotypes and the perception of group differences. American Psychologist, 1968, 23, 817-829.
- Chapman, L. J. Illusory correlation in observational report. Journal of Verbal Learning and Verbal Behavior, 1967, 6, 151-155.
- Chapman, L. J., and Chapman, J. P. Genesis of popular but erroneous psychodiagnostic categories. Journal of Abnormal Psychology, 1967, 72, 193-204.
- Chapman, L. J., and Chapman, J. P. Illusory correlation as an obstacle to the use of valid psychodiagnostic signs. Journal of Abnormal Psychology, 1969, 74, 271-280.
- Feldman, J. M., and Hilterman, R. J. Stereotype attribution revisited: The role of stimulus characteristics, racial attitude, and cognitive differentiation. Journal of Personality and Social Psychology, 1975, 21, 1177-1188.
- Golding, S. L., and Rorer, L. G. Illusory correlation and subjective judgment. Journal of Abnormal Psychology, 1972, 80, 249-260.

- Hakel, M. D., and Dunnette, M. D. Checklists for describing job applicants. Minneapolis, Minn.: University of Minnesota Industrial Relations Center, 1970.
- Hamilton, D. L., and Gifford, R. K. Illusory correlations in interpersonal perception: A cognitive basis of stereotype judgments. Journal of Experimental Social Psychology, 1976, 12, 392-407.
- Jones, E. E., and Davis, K. E. From acts to dispositions: The attribution process in person perceptions. In L. Berkowitz (Ed.), Advances in experimental social psychology. New York: Academic Press, 1965, Vol. 2, pp. 219-266.
- London, M., and Poplawski, J. R. Effects of information on stereotype development in performance appraisal and interview contexts. Journal of Applied Psychology, 1976, 61, 199-205.
- Oldham, G. R. Organizational choice and some correlates of individuals' expectancies. Decision Sciences, 1976, 7, 873-884.
- Saegert, S., Swap, W., and Zajonc, R. B. Exposure, context and interpersonal attraction. Journal of Personality and Social Psychology, 1975, 25, 234-242.
- Skinner, B. F. Contingencies of reinforcement: A theoretical analysis. New York: Appleton-Century-Crofts, 1969.
- Springbett, B. M. Factors affecting the final decision in the employment interview. Canadian Journal of Psychology, 1958, 12, 13-22.
- Starr, B. J., and Katkin, E. S. The clinician as an aberrant actuary: Illusory correlation and the Incomplete Sentence Blank. Journal of Abnormal Psychology, 1969, 74, 670-675.
- Warr, P. B., and Knapper, C. The perception of people and events. London: Wiley, 1968.
- Webster, E. C. Decision making in the employment interview. Montreal: Eagle, 1969.

TABLE 1

Mean Performance Ratings of Minority and Majority
Subgroups When the Work Unit's Performance
Is Positively and Negatively Skewed

	<u>Minority</u>	<u>Majority</u>
<u>Unit's Performance Distribution</u>		
Negatively Skewed	5.48	5.42
Positively Skewed	4.61	4.16

TABLE 2

Mean Performance Ratings of Subgroups in the Work
Unit and Candidates When the Unit's Performance
Is Positively and Negatively Skewed

	<u>Subgroup</u>	<u>Candidate</u>
<u>Unit's Performance Distribution</u>		
Negatively Skewed	6.03	4.88
Positively Skewed	4.04	4.73

TABLE 3

Frequencies With Which Candidates Were
Selected for the Minority-Majority and
Disadvantaged-Advantaged Subgroup Conditions

<u>Candidate Selected</u>	<u>Unit's Performance Distribution</u>		
	Negatively Skewed	Positively Skewed	χ^2
Minority	44	60	5.37*
Majority	52	36	
Disadvantaged	20	27	2.04
Advantaged	28	21	
Minority and Disadvantaged	18	33	9.41**
Majority and Advantaged	30	15	
Minority and Advantaged	26	27	.04
Majority and Disadvantaged	22	21	

*
 $p < .05$

**
 $p < .01$

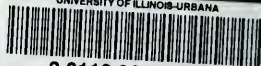
TABLE 4

Frequencies With Which Candidates Were
Selected for the Sex, Race, and Age Conditions

<u>Subgroup Type</u>	<u>Candidate Selected</u>	<u>Unit's Performance Distribution</u>		
		Negatively Skewed	Positively Skewed	χ^2
Female minority; male majority	Minority	6	9	1.13
	Majority	10	7	
Older minority; younger majority	Minority	5	13	8.13*
	Majority	11	3	
Black minority; white minority	Minority	7	11	2.03
	Majority	9	5	
Male minority; female majority	Minority	8	12	2.13
	Majority	8	4	
Younger minority; older majority	Minority	8	8	0
	Majority	8	8	
White minority; black majority	Minority	10	7	1.13
	Majority	6	9	

*
p < .01

UNIVERSITY OF ILLINOIS-URBANA



3 0112 060296552